



# National Weather Service

## Storm Data and Unusual Weather Phenomena



August 2002

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed   Injured		Estimated Damage Property   Crops	Character of Storm
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### LAKE MICHIGAN

<b>LMZ645</b>	<b>North Pt Lt To Wind Pt Wi</b>							
<b>Milwaukee Harbor</b>	<b>01</b>	<b>1935CST</b>			<b>0</b>	<b>0</b>		<b>Marine Tstm Wind (G41)</b>
A small cluster of thunderstorms pulsed to severe limits over land and then moved out over Lake Michigan								
<b>LMZ645</b>	<b>North Pt Lt To Wind Pt Wi</b>							
<b>Cudahy</b>	<b>21</b>	<b>1839CST</b>			<b>0</b>	<b>0</b>		<b>Marine Tstm Wind (G36)</b>
<b>LMZ643</b>	<b>Sheboygan To Pt Washington Wi</b>							
<b>Harrington Bch St Prk</b>	<b>21</b>	<b>1902CST</b>			<b>0</b>	<b>0</b>		<b>Marine Tstm Wind (G56)</b>
Clusters and short lines of thunderstorms merged into a single complex over southern Wisconsin and then moved out over Lake Michigan.								
<b>LMZ646</b>	<b>Wind Pt Lt Wi To Winthrop Hbr Il</b>							
<b>Racine</b>	<b>21</b>	<b>1920CST</b>			<b>0</b>	<b>0</b>		<b>Marine Tstm Wind (G44)</b>
<b>LMZ645</b>	<b>North Pt Lt To Wind Pt Wi</b>							
<b>Milwaukee Harbor</b>	<b>21</b>	<b>1930CST</b>			<b>0</b>	<b>0</b>		<b>Marine Tstm Wind (G40)</b>
<b>LMZ645</b>	<b>North Pt Lt To Wind Pt Wi</b>							
<b>Milwaukee Harbor</b>	<b>21</b>	<b>1935CST</b>			<b>0</b>	<b>0</b>		<b>Marine Tstm Wind (G42)</b>
<b>LMZ646</b>	<b>Wind Pt Lt Wi To Winthrop Hbr Il</b>							
<b>Kenosha</b>	<b>21</b>	<b>1940CST</b>			<b>0</b>	<b>0</b>		<b>Marine Tstm Wind (G43)</b>
<b>LMZ646</b>	<b>Wind Pt Lt Wi To Winthrop Hbr Il</b>							
<b>Racine</b>	<b>21</b>	<b>1947CST</b>			<b>0</b>	<b>0</b>		<b>Marine Tstm Wind (G44)</b>
<b>LMZ643</b>	<b>Sheboygan To Pt Washington Wi</b>							
<b>Sheboygan</b>	<b>21</b>	<b>2000CST</b>			<b>0</b>	<b>0</b>		<b>Marine Tstm Wind (G40)</b>
A small cluster of strong thunderstorms pulsed up over southeast Wisconsin and moved out over Lake Michigan, producing measured wind gusts of 40 to 44 kts (46 to 51 mph) at observation sites along the shoreline.								

### WISCONSIN, Southeast

WIZ046>047-051>052-056>060-062>072

Marquette - Green Lake - Fond Du Lac - Sheboygan - Sauk - Columbia - Dodge - Washington - Ozaukee - Iowa - Dane - Jefferson - Waukesha - Milwaukee - Lafayette - Green - Rock - Walworth - Racine - Kenosha

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Drought

This drought period in August, 2002, (rated as D0 to D1 - abnormally dry to a mild drought), over south-central and southeast Wisconsin, was a continuation from a drought that began on July 1, 2002. Many farmers saw their corn crop wither, and there were reports that soybeans stopped growing or the pods stopped filling. Alfalfa hay cutting also suffered. Grass growth slowed dramatically, or stopped altogether. Most locations received less than 1 inch of rain for the first 11 days of August. In fact, Milwaukee Mitchell Field only had one day of measurable rainfall (.24 inch) in the first 11 days of August, and Madison's Truax Field only had .61 inch on only one day as well. The area from eastern Rock County east to the western parts of Racine and Kenosha counties continued to be the driest in southern Wisconsin. Newspaper reports indicated that agricultural experts expected the corn crop yield at harvest time in the fall may only be 1/2 to 2/3 of normal, and the outlook for soybeans was worse. Sweet corn yields were expected to be 20 to 30 percent below normal. Some farmers reported that their wheat crop died. Large cracks developed in many fields and the grasshopper populations were above normal. In addition, flowage (cfs) on most rivers and streams was only 15 to 25 percent of normal for early August. Maximum temperatures on August 1st and 11th were in the lower to middle 90s across southern Wisconsin; otherwise maximum readings were only in the 70s and 80s in between. For Summer 2002, Milwaukee Mitchell Field had 19 days with maximum temperatures of 90 or higher (7 in June, 9 in July, and 3 in August), while Madison's Truax Field had 11 days (3 in June, 6 in July, and 2 in August).



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					Killed	Injured	Property	Crops	

### WISCONSIN, Southeast

#### **Walworth County**

5 NW Delavan 01 1805CST 0 0 Hail(0.75)

#### **Walworth County**

Spring Prairie to Honey Creek 01 1830CST  
1835CST 0 0 Hail(1.25)

#### **Racine County**

Rochester to Waterford 01 1848CST  
1850CST 0 0 Hail(1.75)

#### **Racine County**

Racine 01 1905CST 0 0 Funnel Cloud

A small cluster of thunderstorms pulsed to severe limits and produced large hail.

#### **Walworth County**

3 SSW Whitewater 09 1515CST 0 0 20K Lightning

Lightning struck a substation south-southwest of Whitewater on Clover Valley Road. It left about 8,000 customers without power for 2 to 4 hours. Due to the inter-connection of electrical lines, a substation near Palmyra (Jefferson County) also sustained damage. Consequently power outages were noted in the Hebron to Palmyra area of southeastern Jefferson County. Many businesses were forced to close early.

#### **Sauk County**

4 WNW Plain 11 1515CST 0 0 Hail(1.50)

#### **Sauk County**

4.7 SE Black Hawk 11 1540CST 0 0 Hail(0.75)

#### **Dane County**

1 S Mazomanie 11 1605CST 0 0 Hail(0.75)

#### **Dane County**

Pine Bluff to 2 E Pine Bluff 11 1705CST  
1720CST 0 0 200K 100K Hail(2.00)

#### **Dane County**

Pine Bluff to 2 E Pine Bluff 11 1705CST  
1720CST 0 0 100K Thunderstorm Wind (G70)

#### **Dane County**

Waunakee to 1 N Waunakee 11 1705CST 0 0 Thunderstorm Wind (G56)

#### **Dane County**

Pine Bluff to 2 E Pine Bluff 11 1715CST  
1900CST 0 0 100K 100K Flash Flood

*One to two-hour rainfall amounts related to downburst/flash flood event of 08/11/02.*

A cluster of severe thunderstorms dumped large hail in parts of southern Sauk County, and then dissipated. Another cluster of severe thunderstorms blossomed over western Dane County, resulting in wind, hail, and flash flood damage in the Pine Bluff area, west of the Madison metro-area. In the Pine Bluff area, hurricane-force downburst winds reached estimated speeds of 70 kts (80 mph), resulting in toppled trees and power lines. The fringe effects of this powerful macro-burst resulted in some tree damage north to the Cross Plains to Middleton area. The thunderstorm cluster also produced hail up to 2 inches in diameter in the Pine Bluff area, resulting in major damage to at least 100 vehicles, and to roofs and siding of homes. A one-mile swath of corn was leveled on the north side of Pine Bluff. Up to 4.50 inches of rain fell in the Pine Bluff area in a short period of time, resulting in flash flooding that washed out gravel shoulders of several roads in the Pine Bluff to Middleton area. At least a dozen homes sustained water damage to basement contents due to accumulating water up to 5 feet in depth. Powerful thunderstorm winds also damaged trees and power lines in the Waunakee area north of Madison. The concentration of damage in the Pine Bluff was the result of a series of thunderstorm cells developing in a stationary initiation location in western Dane County. As each cell developed and moved east-northeast, a new cell would replace it on the backside, a process referred to as "back-building." Thunderstorm development was focused by strong warm-air advection between the surface and 10,000 feet above ground coupled with strong surface moisture convergence from eastern Iowa into south-central Wisconsin. Surface dewpoints were in the 60s.



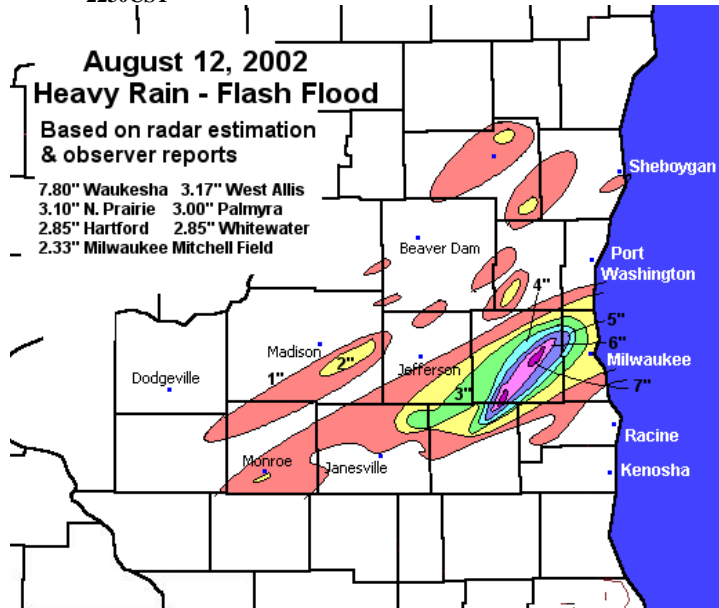
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<u><b>WISCONSIN, Southeast</b></u>									
<b>Ozaukee County</b>									
2.8 E Grafton	12	1400CST			0	0	15K		Lightning
<b>Waukesha County</b>									
Elm Grove	12	1830CST			0	0	250K		Lightning
<b>Rock County</b>									
Janesville	12	1845CST			0	0	20K		Lightning
<b>Waukesha County</b>									
Waukesha	12	1900CST 2200CST			0	0	20K		Flash Flood
<b>Milwaukee County</b>									
Wauwatosa	12	1930CST 2200CST			0	0	10K		Flash Flood
<b>Walworth County</b>									
3.5 NNW East Troy	12	2015CST 2230CST			0	0	5K		Flash Flood



A series of thunderstorms with heavy rains repeatedly trained through a corridor from northwest of East Troy (Walworth Co.) to Waukesha (Waukesha Co.) to the Wauwatosa area (Milwaukee Co.), resulting in flash flooding damage. Area rivers and streams quickly rose about 1 foot above bankfull and many low-lying roads had fast-moving currents of water up to 4 feet deep flowing across them. Mud-slides and gravel shoulder washouts were noted, as well as several stalled vehicles. An Amateur Radio operator in the Waukesha city area measured a total of 7.8 inches of rain in about 4 hours. Other hams and volunteer spotters reported 5 to 7 inches back southwest into Walworth County. In Wauwatosa, a golf course along the Menomonee flooded over when that river exceeded its bank. Spotters noted that visibilities were reduced to below 1/4 mile in the heavy downpours. The combination of numerous lightning strikes and gusty winds of 35 to 39 kts (40 to 45 mph) across southeast Wisconsin left about 30,000 customers without electrical power; in some cases until the afternoon of the next day. The gusty winds broke small tree branches which then struck power lines. An Elm Grove (Waukesha Co.) home was struck by lightning which started a fire that gutted the 2nd floor. A lightning strike on the south side of Janesville knocked a substation out for almost 2 hours. Lightning struck a home east of Grafton (Ozaukee Co.) near Lake Michigan. An attic fire resulted in a small fire, and the home's electrical circuits were damaged. Outside the flash flood areas, rainfall amounts were generally in the 1 to 3 inch range, which signaled the end of the light to moderate drought that affected south-central and southeast Wisconsin since the end of June, 2002. Milwaukee Mitchell Field received 2.32 inches of rain for August 12th, a new daily record, breaking the old record of 1.30 inches set back in 1879.



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### WISCONSIN, Southeast

#### **Milwaukee County**

Countywide	13	1330CST 2200CST			0	0			Urban/Sml Stream Fld
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#### **Waukesha County**

Waukesha	13	1330CST 2200CST			0	0			Urban/Sml Stream Fld
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#### **Ozaukee County**

Port Washington	13	1400CST 1600CST			0	1			Urban/Sml Stream Fld
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#### **Jefferson County**

1.8 SW Ft Atkinson to .5 N Cold Spg	13	1602CST 1616CST	4.5	50	0	0	5K		Tornado (F0)
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A weak tornado spun up 1.8 miles southwest of Ft. Atkinson near the Rock River, and proceeded to move east-southeast across the far southern parts of the city to just north of the intersection of Hwy 89 and M, and then across rural, farm locations to a point just west of N about .5 mile north of Cold Spring. Maximum wind speeds were estimated to be in the 52 to 61 kts (60 to 70) mph range based on F0 damage left behind. Some light damage to shingles and siding was noted on several residential homes. Several large trees were uprooted, and loose lumber and debris was picked up at a lumber yard. At other locations along the path, lawn furniture and other objects were overturned or displaced. Eyewitness reports indicated that the condensation funnel was not visible all the way to the ground, but they noted that dirt was ingested into the circulation, thereby making the tornado visible at ground level. There were no fatalities or injuries. Meteorologically, the tornado was the result of two thunderstorm cells, in a line of storms along a cold front, merging just southwest of Ft. Atkinson. No other severe weather was reported.

Several clusters of thunderstorms with heavy rains developed over and moved northeast across southeast Wisconsin out ahead of a cold front on August 13, 2002, resulting in urban and small stream flooding in Waukesha, Milwaukee, and Ozaukee counties. Rainfall totals were in the 2 to 4 range. In addition, gust winds of 35 to 43 kts (40 to 50 mph) accompanied the storms, resulting in broken tree branches. On the south side of the city of Waukesha, 1.5 inches of rain fell in 20 minutes in the afternoon, once again sending small streams out of their banks and allowing water to accumulate in low-lying areas. The 2-day rain total at this location near the corner of Hwy 164 and CTY I was 8.80 inches! Also on the 13th in the afternoon, 3.4 inches of rain fell at the home of an Amateur Radio operator in the southeast part of the city of Milwaukee. Urban flooding resulted. Some closed roads in both Waukesha and Milwaukee Counties had 3 feet of water on them. Urban flooding affected the Port Washington area (Ozaukee Co.) after about 2 inches of rain fell in about 75 minutes during the afternoon hours. A couple roads were closed in that city. Urban flooding was also reported in Ft. Atkinson (Jefferson Co.) after the tornado event. Heavy rains in this city produced swift currents that knocked a boy down, sending him through a culvert. He was rescued by the Fire Department, and treated for slight injuries.

#### **Sauk County**

La Valle	17	0517CST			0	0			Thunderstorm Wind (G56)
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#### **Dane County**

Madison	17	0605CST			0	0	30K		Thunderstorm Wind (G56)
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#### **Columbia County**

Arlington	17	0606CST			0	0			Thunderstorm Wind (G52)
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Scattered severe thunderstorms popped up over parts of south-central Wisconsin during the early morning hours. Powerful downburst winds estimated in the 52 to 56 kts (60 to 65 mph) range toppled large trees. Tree debris hit several power lines in the Madison area, resulting in some power outages.



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<b><u>WISCONSIN, Southeast</u></b>									
Iowa County									
Rewey	21	1628CST			0	0	25K		Thunderstorm Wind (G65)
Fond Du Lac County									
Ripon	21	1630CST			0	0			Thunderstorm Wind (G56)
Sauk County									
1 SW Limeridge	21	1635CST			0	0			Thunderstorm Wind (G52)
Iowa County									
Mineral Pt	21	1645CST			0	0			Thunderstorm Wind (G56)
Lafayette County									
Leadmine	21	1645CST 1650CST			0	0			Thunderstorm Wind (G56)
Sauk County									
5 NW West Baraboo to Baraboo	21	1645CST 1655CST			0	0	5K		Thunderstorm Wind (G61)
Dane County									
5 NNW Cross Plains	21	1700CST			0	0			Thunderstorm Wind (G56)
Lafayette County									
5 SSE Gratiot	21	1700CST			0	0			Thunderstorm Wind (G56)
Lafayette County									
2 SW Lamont to 1 ENE Lamont	21	1705CST 1708CST			0	0	110K		Thunderstorm Wind (G70)
Marquette County									
Briggsville to Montello	21	1705CST 1710CST			0	0			Thunderstorm Wind (G56)
Columbia County									
1 SE Lewiston	21	1710CST			0	0			Thunderstorm Wind (G52)
Dane County									
Belleville	21	1730CST			0	0			Thunderstorm Wind (G52)
Fond Du Lac County									
Fond Du Lac	21	1730CST 2000CST			0	0			Urban/Sml Stream Fld
Fond Du Lac County									
.6 S Lamartine to 3.7 NNW Oakfield	21	1741CST	0.6	30	0	0			Tornado (F0)
A weak tornado spun up in the rural area north-northwest of Oakfield, just east-southeast of the intersection of Hwy 151 and TC. It moved east-southeast and crossed Hwy Y before dissipating. A few trees were uprooted and some grasses were flattened. Wind speeds, based on damage to vegetation, was estimated about 52 to 61 kts (60 to 70 mph). Amateur Radio operators who observed this weak tornado noted that one had to be within 100 yards of the vortex in order to see it due to rain-wrapping and haze									
Dane County									
Belleville	21	1745CST 1900CST			0	0			Urban/Sml Stream Fld
Jefferson County									
Watertown	21	1800CST 1900CST			0	0			Urban/Sml Stream Fld
Green County									
3.4 NW Monroe to Albany	21	1805CST 1810CST			0	0	25K		Thunderstorm Wind (G61)
Rock County									
5 SW Edgerton to 5 SE Edgerton	21	1805CST 1810CST			0	0			Thunderstorm Wind (G56)



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<u>WISCONSIN, Southeast</u>									
Fond Du Lac County									
3 SE Oakfield	21	1808CST 1810CST			0	0	100K	1K	Thunderstorm Wind (G70)
Jefferson County									
4 W Ft Atkinson	21	1814CST			0	0			Funnel Cloud
Dane County									
3 SW Albion to Albion	21	1815CST 1825CST			0	0			Thunderstorm Wind (G61)
Rock County									
Clinton	21	1820CST			0	0			Thunderstorm Wind (G52)
Rock County									
Janesville	21	1820CST			0	0	2.5K		Lightning
Jefferson County									
3.5 ESE Rome	21	1825CST 1827CST			0	0		2K	Thunderstorm Wind (G56)
Rock County									
Edgerton	21	1825CST 2000CST			0	0			Urban/Sml Stream Fld
Rock County									
2 S Newark	21	1830CST 2000CST			0	0			Urban/Sml Stream Fld
Sheboygan County									
Plymouth	21	1830CST			0	0	5K		Lightning
Jefferson County									
Busseyville	21	1840CST			0	0			Thunderstorm Wind (G52)
Walworth County									
Richmond	21	1840CST			0	0			Thunderstorm Wind (G52)
Waukesha County									
Waukesha	21	1845CST 2000CST			0	0			Urban/Sml Stream Fld
Waukesha County									
1 NE Waukesha Co Arpt 2.7 E Capitol Drive Arpt	21	1845CST 1855CST			0	0	2M		Thunderstorm Wind (G87)
Dodge County									
1 E Neosho	21	1850CST			0	0			Thunderstorm Wind (G52)
Walworth County									
1.5 S Elkhorn	21	1851CST			0	0			Thunderstorm Wind (G56)
Ozaukee County									
Port Washington	21	1900CST 2100CST			0	0			Urban/Sml Stream Fld
Ozaukee County									
Fredonia	21	1902CST			0	0			Thunderstorm Wind (G52)
Dane County									
Marshall	21	1905CST			0	0			Thunderstorm Wind (G52)
Racine County									
Waterford to Tichigan	21	1905CST 1910CST			0	0			Thunderstorm Wind (G61)
Washington County									
Germantown	21	1907CST			0	0			Thunderstorm Wind (G56)
Waukesha County									
3 S Waukesha	21	1910CST			0	0			Thunderstorm Wind (G56) <sup>M</sup>



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<b><u>WISCONSIN, Southeast</u></b>							
<b>Milwaukee County</b>							
West Allis to Milwaukee	21	1912CST 1925CST			0 0	50K	Thunderstorm Wind (G56)
<b>Kenosha County</b>							
Twin Lakes to Silver Lake	21	1915CST 1925CST			0 0		Thunderstorm Wind (G56)
<b>Milwaukee County</b>							
Timmerman Arpt	21	1915CST			0 0	5.1M	Thunderstorm Wind (G70)
<b>Washington County</b>							
4 E West Bend	21	1915CST			0 0		Thunderstorm Wind (G52)
<b>Racine County</b>							
Sturtevant to Wind Pt	21	1920CST 1935CST			0 0	1M	Thunderstorm Wind (G74)
<b>Milwaukee County</b>							
Cudahy to South Milwaukee	21	1930CST 1935CST			0 0	100K	Thunderstorm Wind (G65)
<b>Racine County</b>							
1.2 E Horlick Racine Arp	21	1930CST			0 0	10K	Lightning
<b>Racine County</b>							
Racine	21	1930CST			0 0	5K	Lightning
<b>Sheboygan County</b>							
Cedar Grove to Oostburg	21	1930CST 2130CST			0 0		Urban/Sml Stream Fld
<b>Green County</b>							
Juda to Brodhead	21	2043CST 2050CST			0 0		Thunderstorm Wind (G56)
<b>Milwaukee County</b>							
Fox Pt	21	2100CST			0 0	500K	Lightning
<b>Milwaukee County</b>							
White Fish Bay	21	2100CST			0 0	1K	Lightning
<b>Waukesha County</b>							
3 SE Delafield	21	2130CST			0 0	3K	Lightning
<b>Waukesha County</b>							
1.5 S Hartland	21	2135CST			0 0	5K	Lightning
<b>Lafayette County</b>							
Benton to 5 SSE Gratiot	22	0320CST 0600CST			0 0		Urban/Sml Stream Fld

The severer weather and flooding that affected much of south-central and southeast Wisconsin on August 21, 2002, into the pre-dawn hours of the 22nd, was probably the most widespread and significant outbreak for the 2002 warm-season. Just about every type of weather phenomena was observed: a tornado; a funnel cloud; powerful, hurricane-force, downburst winds that uprooted trees and damaged buildings; torrential rains reducing visibilities to 100 feet; urban and small stream flooding; numerous lightning strikes - some that resulted in fire damage; and the early stages of a ground-based vortex that never made it to tornado status. Clusters and short lines of thunderstorms ahead of a cold front eventually merged into a single complex that moved west to east across southern Wisconsin. Surface dewpoints were in the lower 70s and maximum afternoon temperatures were in the mid to upper 80s. At least 56,000 customers in southeast Wisconsin lost electrical power thanks to lightning strikes, and tree damage to power lines. One of the worst lightning strikes was in Fox Point (Milwaukee Co.), where a lightning fire burned a home to the ground. In the city of Racine (Racine Co.), lightning blew a home's windows out.

Near Rewey (Iowa Co.), the thunderstorm winds blew the roof of a building, and flattened a farm shed. Just southwest of Lamont (Lafayette Co.), the winds blew an attached garage off a home, demolished an old barn whose pieces were pushed onto a road, and leveled several large trees. North of Baraboo (Sauk Co.), the winds pushed a tree on to a home, and damaged siding and cables on another home. A weak F0 tornado spun up in the rural area north-northwest of Oakfield (Fond du Lac Co.), but damage was limited to vegetation. The discussion on this tornado can be found as a separate August 21, 2002 episode in this publication. About 3 miles southeast of Oakfield, a gustnado (Thunderstorm Wind event) with estimated wind speeds of 61 to 70 kts (70 to 80 mph) tore off a pole shed's roof, demolished yard furniture, and severely damaged another building. Some corn crop was also damaged. Based on





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		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	

### WISCONSIN, Southeast

WSWR-88D imagery, it appears that the convergence of two gust fronts initiated the gustnado. North-northeast of Monroe (Green Co.) a shed was blown onto a road and further northeast near Albany a farm wagon was blown on to a road. Partial roof damage occurred southwest of Albion (Dane Co.) as the storms moved through. A trained spotter on the west shore of Rock Lake in the city of Lake Mills (Jefferson Co.) observed a circulation whip up 3-foot tall waves with white caps on the lake while also observing a wall cloud above. This vortex never spun up to cloud base, which would have classified it a tornado. No damage was noted. A weak gustnado on a gust front, with estimated winds of 52 to 61 kts (60 to 70 mph) damaged some corn and trees just 1/4 mile to the west of the Milwaukee/Sullivan NWS office east of Rome. An incredibly powerful macroburst tore through the area from just northeast of the Waukesha County airport northeastward through Pewaukee to that part of Brookfield east of Capital Drive Airport. Estimated wind speeds reach 100 mph based on a measured gust of 98 mph at a home south of Green Rd. near Duplainville, in the Town of Brookfield. At the intersection of I-94 and Hwy T, the steel support posts for road signs were twisted by the winds. At least 8 homes southeast of Duplainville had damage ranging from blown-out windows and damaged chimneys to roof damage, toppled street lights, and a demolished garage. One house was slightly shifted off its foundation; obviously it wasn't well-anchored to its foundation. In the city of Brookfield there were two localized areas where large trees were uprooted: in the Camelot Park area and in the Beverly Hills Park area. A large tree fell onto a home's screened porch, resulting in severe damage. A couple other homes had some minor gutter, siding, and window damage as large tree branches scraped the sides while falling. The powerful winds also hit Milwaukee County hard. An estimated wind gust of at least 70 kts (80 mph) ripped a 100-foot long blimp from its mooring at Timmerman Field, allowing the blimp to fly about 6 blocks and damage 4 homes on impact. The winds blew water through the flaps that cover the edges of the retractable roof panels of Miller Park in Milwaukee, resulting in a saturated playing field, and some wet spectators. In Cudahy an eight-car garage's roof was removed by the winds, and 3 stalls collapsed, based on Amateur Radio reports. A picnic shelter and several other garages and businesses on College Ave. near Lake Michigan also sustained some damage. In the city of South Milwaukee, a business's sign and fence were destroyed by the winds. Another powerful hurricane-force microburst moved northeast through Sturtevant (Racine Co.) through the north side of the city of Racine to Wind Point. The roof of an apartment building in Racine was partially ripped off by the winds. In addition, large trees were uprooted and several other homes suffered slight damage from felled trees and tree branches. Farther west in the Waterford area, a 2-story tall grain bin was lifted off the ground and moved 15 feet by the winds, while nearby large trees were damaged.

Torrential rainfalls up to the rate of 1 inch in 15 to 20 minutes were common with many of the storms, resulting in scattered areas of urban and small stream flooding. The rainfall rate at one location in the city of Milwaukee peaked at over 6 inches per hour! Combined late-afternoon and evening rainfall totals reached 1 to 3 inches across much of south-central and southeast Wisconsin. The southern part of Lafayette County near the Illinois border received up to 5 to 6 inches of rain (based on WSR-88D Doppler radar rainfall estimates) due to repeated rounds of thunderstorms moving west to east across that area. In Gratiot, 4.10 inches were measured, but this location was north of the area that had greater amounts. Just across the border in the northwestern Illinois counties of Jo Daviess and Stephenson spotters measured over 10 inches of rain! Luckily for Lafayette County, which has hilly terrain, the rains came in several rounds and resulted in only urban/small stream flooding, rather than flash flooding.